Claims

1. A fibre optic accelerometer comprising a seismic mass coaxially constrained within a cylinder of compliant material, the cylinder being circumferentially wound with optical fibre.

2. An accelerometer according to any preceding claim in which compression of the cylinder by the seismic mass increases stress in the optical fibre.

3. An accelerometer according to any preceding claim, wherein the seismic mass is surmounted with a disc shaped portion.

4. An accelerometer according to any preceding claim, wherein the seismic mass is secured by a tension member to a base plate.

5. An accelerometer according to Claim 4, wherein a spacer is provided between the cylinder and the base plate.

6. An accelerometer according to Claim 5, wherein the spacer is integral with the base plate.

7. An accelerometer according to any preceding claim, wherein the optical fibre is wound in a single layer.

8. An accelerometer according to any preceding claim, wherein the base plate is integral with a platform or structure.

9. An accelerometer according to any preceding claim in which the seismic mass is coaxially constrained within first and second cylinders of compliant material, each cylinder being circumferentially wound with optical fibre.

10. An accelerometer according to claim 9 in which the seismic mass comprises a first circumferentially located bearer member arranged in operation to bear on an end of at least one of the compliant cylinders.

11. An accelerometer according to claim 10 in which the first circumferentially located bearer member is arranged in operation to bear on respective ends of both of the compliant cylinders.

12. An accelerometer according to claim 10 comprising a second circumferentially located bearer member arranged in operation to bear on an end of a second of the compliant cylinders.

13. An accelerometer according to any one preceding claim in which the outer surface of the seismic mass and the inner surface of the one or more compliant cylinders are shaped so as to prevent the one or more cylinders deforming inwardly under axial compression.

14. An optical interferometer comprising an accelerometer according to any preceding claim.

15. A method of measuring acceleration comprising providing a seismic mass coaxially constrained within a cylinder of compliant material, the cylinder being circumferentially wound with optical fibre, axial displacement of the seismic mass deforming the cylinder so as to vary the stress induced in the optical fibre.

16. A method of measuring acceleration comprising providing a seismic mass coaxially constrained within first and second cylinders of compliant material, each cylinder being circumferentially wound with optical fibre, axial displacement of the seismic mass deforming each cylinder so as to vary the stress induced in respective optical fibres.

17. A method according to any one of claims 15-16 in which compression of each cylinder by the seismic mass increases stress in the respective optical fibre.

18. A fibre optic accelerometer substantially as described herein with reference to the accompanying drawings.

19. A optical interferometer substantially as described herein with reference to the accompanying drawings.